

CLAIMS

We Claim:

1. A system for mapping an input device's controls with an application,
5 comprising:

a user input device having a plurality of controls;

an application that implements actions in response to activation of the controls

of the user input device; and

an API that receives calls from the application, the API including a call that
10 creates an association between actions in the application and the controls on the input device.

2. The system of claim 1, wherein the application can override the association
created by the API.

15 3. The system of claim 1, wherein an action is an application behavior resulting
from a user's operation of a control.

4. The system of claim 1, wherein creating the association further includes
linking a control-semantic set to an action-semantic set by way of a genre, wherein the genre is
20 a set of actions common to applications of a similar type.

5. The system of claim 1, wherein the API considers user preferences in creating
the association.

6. The system of claim 1, wherein the API considers information provided from the device manufacturer in creating the association.

5 7. The system of claim 1, wherein the API considers similar applications that a user has configured to determine the association between an action and a given device control.

8. The system of claim 1, wherein the API binds actions of the application to semantics in a genre by using a structure having an action value, a predefined action semantic
10 associated with the action value, and a label for the action.

9. The system of claim 1, wherein the application passes a structure to the API that includes an action value and an action semantic associated with the action value.

15 10. The system of claim 9, wherein the API returns to the application an enumeration of input devices connected to the system that match the actions of the application.

11. The system of claim 9, wherein in response to an application call, the API examines all input devices connected to the system and invokes an application-defined callback
20 function to enumerate the connected devices that match the application actions.

12. The system of claim 1, wherein the application receives its own application codes as incoming input device data.

13. The system of claim 1, wherein the API ranks input devices based on
5 suitability of actions of the application.

14. The system of claim 1, further including an API call to display a default input device configuration.

10 15. The system of claim 14, further including automatically obtaining system information about input devices connected in the system, retrieving custom settings provided by the user, and rendering the user interface for input devices using system information and custom settings.

15 16. The system of claim 1 further including building an action map.

17. The system of claim 16 further including setting the action map after it is built.

20 18. The system of claim 17, wherein setting the action map includes mapping physical controller codes of the input device to physical application codes.

19. The system of claim 16 wherein building an action map includes obtaining information about user preferences and hardware manufacturer defaults to create the association between actions and device controls.

5 20. The method of claim 1 wherein the application is a game application.

21. The method of claim 1 wherein the input device includes a mouse, keyboard, game controller, force feedback device, or combinations thereof.

10 22. A method of communicating between an input device and an application in a system, comprising:

(a) issuing, from the application, a call to enumerate a suitability of input devices installed in the system, the call including an array of actions that the application uses;

15 (b) in response to the application call, examining the input devices installed on the system by comparing controls on the input devices with actions used by the application;

(c) ranking the input devices based on the comparison; and

(d) providing the application with at least the highest ranked input device that most closely matches the actions of the application.

20 23. The method of claim 22, wherein the input device received by the application is advisory and the application selects the desired input device.

24. The method of claim 22, further including building an action map that includes a mapping of actions to controls for a selected device.

25. The method of claim 24, further including setting the action map.

5

26. The method of claim 22, further includes configuring the user interface.

27. A method for mapping an input device's controls with an application in a system, comprising:

10 in response to a request from an application program to create an action-to-control mapping, reading stored user preferences for the action-to-control mapping and reading a stored default file that includes manufacture provided defaults for the action-to-control mapping;

15 reading a structure that includes action values and action semantics associated with the action values, the action values being defined by the application; and

using the stored user preferences and the stored default file to create an association between the action values associated with the application and the controls on the input device.

20 28. The method of claim 27, wherein the creating includes creating a control-to-action map and further including setting the action map to allow the application to receive data from the input device.

29. The method of claim 26 further including, in response to a request from the application, enumerating input devices attached to the system that are most suitable to the application.

5

30. A computer-readable medium including computer-executable instructions to perform a method for using a computer input device with a software application, comprising:

an API, responsive to a call from an application, that returns an enumeration of input devices that substantially match the actions of the application; and

10

an API, responsive to a call from the application, that uses one of the enumerated input devices selected by the application to build an action-to-control mapping.

3382-55837 05/14/01 MS# 154789.2